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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,757	03/05/2002	Rikuro Obara	2523-073	7424

7590 07/03/2002

ISRAEL GOPSTEIN, Esq.  
Suite 200C  
14301 Layhill Rd.  
P.O. Box 9303  
Silver Spring, MD 20916-9303

EXAMINER

ELKASSABGI, HEBA

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 07/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/087,757

Applicant(s)

OBARA,

Examiner

Heba Elkassabgi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03/05/2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 3 and 5 are objected to because of the following informalities: The word "farmed", should be corrected to "formed". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Prior Art (APA) and further in view of Takemura et al. (U.S. Patent 5880545) and Pujari et al. (U.S. Patent 6158894).
4. Applicants Prior Art discloses In Figures 35 and 36 a motor driving magnetic disk having a rotational member (45) supported through a rotational bearing device (central sleeve of a rotor) (46) with a rotational member (shaft) (48) supported onto a base member (41) and the ball bearings (bearing device) (40) having inner and outer rings (40a and 40b) with a plurality of balls (40c) interposed there between. However,

Applicants Prior Art does not show a low expansion ring that is on the outer periphery of the outer rings and made of material having a coefficient of linear expansion and the ball bearing made of ceramic material.

5. Takemura et al. Illustrates in Figure 16 a low expansion member (bearing cylindrical ring) (303) which is press fitted around the outer periphery of the outer rings (304 and 305) in order to seal the motor.

6. Pujari et al. Illustrates in Figure 1 a ball bearing in which in a plurality of balls (roller elements) (3) are of ceramic material, in order to have a high resistance to roller contact fatigue and high resistance to wear.

7. In regards to Claims 1 and 7 the material choice of the low expansion ring, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the low expansion ring be of ceramic material. Since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

8. It would have been obvious to one of ordinary skill in the art to modify Applicants Prior Art with Takemura et al. in order to seal the motor and Pujari et al. in order to have a high resistance to roller contact fatigue and high resistance to wear.

9. Claims 2, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itsu (U.S. Patent 5128571) and further in view of Takemura et al. (U.S. Patent 5880545) and Pujari et al. (U.S. Patent 6158894).

10. Itsu discloses in Figure 4 a motor having a rotational member (rotor) (5) supported through a bearing device provided onto a base member (mounting device) (20) in which the bearing device includes a shaft (3) having a cylindrical outer ring member (16) with a plurality of balls (rolling elements) (19) that are arranged on the second row and being interposed between the shaft and inner periphery of the outer ring. However, Itsu does not disclose a low expansion ring member pressed fitted on the outer periphery of the outer ring and made of material having a coefficient of linear expansion and the ball bearing made of ceramic material. and a first and second outer rings having a raceway and a first and second row inner rings having a raceway with the slidable inner ring.

11. Takemura et al. Illustrates in Figure 16 a low expansion member (bearing cylindrical ring) (303) which is press fitted around the outer periphery of the outer rings (304 and 305) in order to seal the motor.

12. Pujari et al. Illustrates in Figure 1 a ball bearing in which in a plurality of balls (roller elements) (3) are of ceramic material, in order to have a high resistance to roller contact fatigue and high resistance to wear.

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13. Obara et al. discloses in Column 8 line 54 to 56 an inner ring which is axially slidable relative to the axle (shaft) in order to accomplish the object of the invention of allowing a pre-load to be easily applied to the bearings.

14. In regards to Claims 2 and 9 the material choice of the low expansion ring, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the low expansion ring be of ceramic material. Since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

15. It would have been obvious to one of ordinary skill in the art to modify Itsu with Takemura et al. in order to seal the motor and Pujari et al. in order to have a high resistance to roller contact fatigue and high resistance to wear and with Obara et al. in order to allow an easier pre-load to the bearings.

16. Claims 3, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itsu (U.S. Patent 5128571) and further in view of Takemura et al. (U.S. Patent 5880545) and Miyazaki et al. (U.S. Patent 5547291) and Obara et al. (U.S. Patent 5556209) and Pujari et al. (U.S. Patent 6158894).

17. Itsu discloses in Figure 4 a motor having a rotational member (rotor) (5) supported through a bearing device provided onto a base member (mounting device) (20) in which the bearing device includes a shaft (3) having a cylindrical outer ring member (16) with a plurality of balls (rolling elements) (19) that are arranged on the second row and being interposed between the shaft and inner periphery of the outer ring. However, Itsu does not disclose a low expansion ring member pressed fitted on the outer periphery of the outer ring and made of material having a coefficient of linear expansion and the ball bearing made of ceramic material. and a first and second outer rings having a raceway and a first and second row inner rings having a raceway with the slidable inner ring.

18. Miyazaki et al. discloses in Figures 11 (A) and 12 (A), first and second outer rows (outer rings) (21 and 21a) with outer raceways (23 and 24) on the inner periphery sides of the rings. The first and second inner rows (inner rings) (17 and 17b) with inner raceways (16b and 18b) on the outer periphery of the raceways. The purpose of the raceways are essential in securely fixing the balls (5) to the rings and to apply the appropriate preload to the rings.

19. Takemura et al. Illustrates in Figure 16 a low expansion member (bearing cylindrical ring) (303) which is press fitted around the outer periphery of the outer rings (304 and 305) in order to seal the motor.

20. Obara et al. discloses in Column 8 line 54 to 56 an inner ring which is axially slidable relative to the axle (shaft) in order to accomplish the object of the invention of allowing a pre-load to be easily applied to the bearings.

21. Pujari et al. Illustrates in Figure 1 a ball bearing in which in a plurality of balls (roller elements) (3) are of ceramic material, in order to have a high resistance to roller contact fatigue and high resistance to wear.

22. In regards to Claims 3 and 10 the material choice of the low expansion ring, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the low expansion ring be of ceramic material. Since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

23. It would have been obvious to one of ordinary skill in the art to modify Itsu with Takemura et al. in order to seal the motor and Pujari et al. in order to have a high resistance to roller contact fatigue and high resistance to wear and Miyazaki et al. in order to securely fix the balls (5) to the rings and to apply the appropriate preload to the rings.



24. Claim 4, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itsu (U.S. Patent 5128571) and further in view of Takemura et al. (U.S. Patent 5880545) and Pujari et al. (U.S. Patent 6158894).

25. Itsu discloses in Figure 4 a motor having a rotational member (rotor) (5) supported through a bearing device provided onto a base member (mounting device) (20) in which the bearing device includes a shaft (3) having a cylindrical outer ring member (16) with a plurality of balls (rolling elements) (19) that are arranged in first and second rows and being interposed between the shaft and outer ring. With the central portion of the rotational member fit over the outer periphery of the outer ring. However, Itsu does not disclose a low expansion ring member pressed fitted on the outer periphery of the outer ring and made of material having a coefficient of linear expansion and the ball bearing made of ceramic material.

26. Takemura et al. Illustrates in Figure 14 the shaft (205) is secured to the base member (201) and extended there from in order to secure the shaft within the motor, and in Figure 16 a low expansion member (bearing cylindrical ring) (303) which is press fitted around the outer periphery of the outer rings (304 and 305) in order to seal the motor.

27. Pujari et al. Illustrates in Figure 1 a ball bearing in which in a plurality of balls (roller elements) (3) are of ceramic material, in order to have a high resistance to roller contact fatigue and high resistance to wear.

28. In regards to Claims 4 and 13 10 the material choice of the low expansion ring, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the low expansion ring be of ceramic material. Since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

29. It would have been obvious to one of ordinary skill in the art to modify Itsu with Takemura et al. in order to secure the shaft within the motor and seal the motor and Pujari et al. in order to have a high resistance to roller contact fatigue and high resistance to wear.

30. Claims 5, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itsu (U.S. Patent 5128571) and further in view of Takemura et al. (U.S. Patent 5880545) and Miyazaki et al. (U.S. Patent 5547291) and Obara et al. (U.S. Patent 5556209) and Pujari et al. (U.S. Patent 6158894).

31. Itsu discloses in Figure 4 a motor having a rotational member (rotor) (5) supported through a bearing device provided onto a base member (mounting device) (20) in which the bearing device includes a shaft (3) having a cylindrical outer ring member (16) with a plurality of balls (rolling elements) (19) that are arranged on the second row and being interposed between the shaft and inner periphery of the outer ring. With the central portion of the rotational member fit over the outer periphery of the outer ring. However, Itsu does not disclose a low expansion ring member pressed fitted on the outer periphery of the outer ring and made of material having a coefficient of linear expansion and the ball bearing made of ceramic material. and a first and second outer rings having a raceway and a first and second row inner rings having a raceway with the slidable inner ring.

32. Miyazaki et al. discloses in Figures 11 (A) and 12 (A), first and second outer rows (outer rings) (21 and 21a) with outer raceways (23 and 24) on the inner periphery sides of the rings. The first and second inner rows (inner rings) (17 and 17b) with inner raceways (16b and 18b) on the outer periphery of the raceways. The purpose of the raceways are essential in securely fixing the balls (5) to the rings and to apply the appropriate preload to the rings.

33. Takemura et al. Illustrates in Figure 14 the shaft (205) is secured to the base member (201) and extended there from in order to secure the shaft within the motor, and in Figure 16 a low expansion member (bearing cylindrical ring) (303) which is press

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fitted around the outer periphery of the outer rings (304 and 305) in order to seal the motor.

34. Pujari et al. Illustrates in Figure 1 a ball bearing in which in a plurality of balls (roller elements) (3) are of ceramic material, in order to have a high resistance to roller contact fatigue and high resistance to wear.

35. In regards to Claims 5 and 15 the material choice of the low expansion ring, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the low expansion ring be of ceramic material. Since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

36. It would have been obvious to one of ordinary skill in the art to modify Itsu with Takemura et al. in order to seal the motor and Pujari et al. in order to have a high resistance to roller contact fatigue and high resistance to wear and Miyazaki et al. in order to securely fix the balls (5) to the rings and to apply the appropriate preload to the rings.

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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heba Elkassabgi whose telephone number is (703) 305-2723. The examiner can normally be reached on M-Th (6:30-3:30), and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Heba Y.M. Elkassabgi  
June 28, 2002

  
KARI TAMAI  
PRIMARY EXAMINER